ANGIOTK : An Open Platform to reconstruct vessels from MRI images and simulate blood flows to ultimately provide Virtual Angiographies

Vincent Chabannes, Alexandre Ancel, Julien Jomier, Christophe Prud'Homme

ANGIOTK

An Open Platform to reconstruct vessels from MRI images and simulate blood flows to ultimately provide Virtual Angiographies

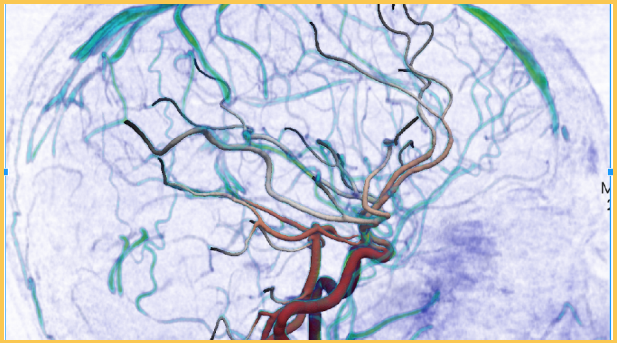
The platform is still a prototype, but reached a level of maturity that requires very little human intervention. The overall objective is to make available, to the medical community, tools for computer aided modeling for conducting experiments in silico, otherwise difficult or impossible to carry on patients.

A specific aim is to create an ecosystem around the platform composed of academic, research centers and enterprises and to provide services such as training, specific developments, consulting or deployment

The platform is operated by Cemosis and Kitware.

Contacts:

christophe.prudhomme@cemosis.fr
julien.jomier@kitware.com



ANGIOTK

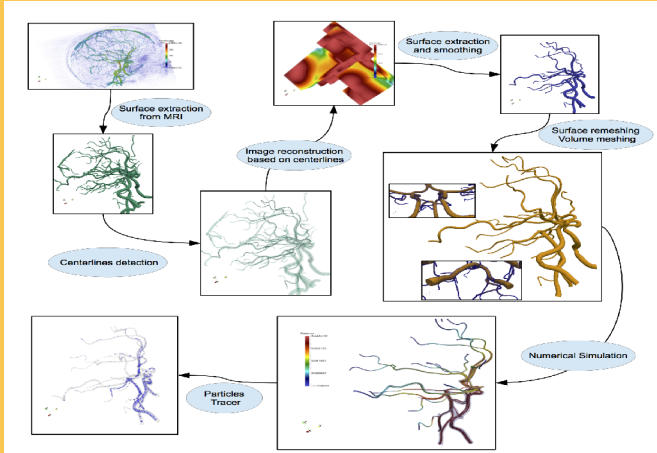
From medical images to numerical simulations

V. Chabannes, A. Ancel, J. Jomier, C. Prud'Homme

Rencontres INRIA-Industries Santé, Bordeaux , Oct. 13 2015

ANGIOTK

A Software Pipeline



We have developed the open-source platform AngioTK that implements the complete pipeline using the following open-source software

Imaging: **VTK & ITK** http://www.itk.org

Filtering: **RORPO** http://path-openings.github.io/RORPO/

Extraction: **VMTK** http://www.vmtk.org/

Mesh Generation: **GMSH** http://geuz.org/gmsh

Blood Simulations: **Feel++** http://www.feelpp.org

MRI Simulations: **JEMRIS** http://www.jemris.org

Development https://github.com/vivabrain/angiotk

Forum https://gitter.im/vivabrain/angiotk

Open-Source License BSD

FEEL++

A Framework for Numerical Simulations

Feel++ is an open-source C++ library dedicated to solve partial differential equations using a language very close to the mathematics embedded in C++.

Its features include:

- *arbitrary order Galerkin methods from 1D to 3D*
- *various finite elements H^1, L^2, H(div), H(curl)*
- *seamless parallel computing*
- *scale up to tens of thousands of cores*
- *In-Situ Visualisation*

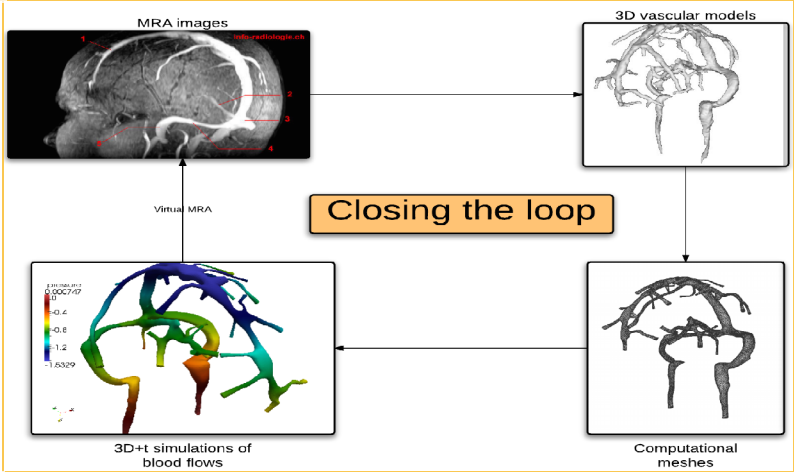
Website http://www.feelpp.org

Development https://github.com/feelpp/feelpp

Forum https://gitter.im/feelpp/feelpp

VIVABRAIN CONSORTIUM

Funded by ANR



Consortium

cemosis
Centre de modélisation et de simulation de Strasbourg

Kitware

Université de Reims Champagne-Ardenne

Université Joseph Fourier

Université Paris-Est

Université de Strasbourg

Funding

Agence Nationale de la Recherche ANR

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